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Some notes on type material of moas (Aves: Dinornithidae)

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During a comprehensive recuration of the collection of Moa material in the Natural History Museum, South Kensington, certain discoveries were made concerning 'type' specimens. We here present a report of these findings.

Although the biological interest of these specimens, with their lack of collection data, is probably small, they do represent an important record of the sometimes confused history of moa systematics. They also illustrate some of the problems that can be associated with the type-based classificatory system. Recently some effort has been made to perform numerical analysis of morphometric data of the moa hindlimb. Cracraft's (1976) attempt is perhaps the most notable. Worthy (1988) has produced a key to the identification of hindlimb elements, which will undoubtedly prove a great aid to the curation of moa material. Anderson (1990) has published an extensive review of the ecology, morphology and history of moas which hopefully may excite increased interest in this fascinating group of extinct birds.

Dinornis maximus Owen

Lydekker's (1891) catalogue of fossil birds states that the collection contained casts of the syntypes of *Dinornis maximus*. Owen (1869) described the new species of moa on the basis of a syntypical

series of the right tarsometatarsus, the left tibiotarsus, and the left femur. He stated that in March 1867 he was "favoured by Major J. Michael, of the Madras Staff Corps, with the opportunity of inspecting the femur, tibia and metatarse". The bones in the possession of Major Michael are described and figured by Owen (1869, 1879). The type locality is given as Glenmark Estate, 45 miles from Christchurch.

During the recuration it became evident that both the casts (BMNH no. A161) and the syntypical series of hindlimb elements were present in the collection. It is a matter of speculation as to the history of the bones over the last 130 years. Archey (1941) and Brodkorb (1955) both stated that the last known possessor of the types was Major Michael. It may simply be the case that they only made reference to Lydekker (1891) in reaching this conclusion. It is possible that the Museum purchased the collection some time after Owen's (1869) description, and due to the presence of the casts in the collection, the curator at that time saw no need to register the bones separately. Lydekker may simply have overlooked the bones.

Pachyornis (Dinornis) elephantopus (Owen)

In 1856 Owen described a new species of moa based upon hindlimb elements from an assemblage of bones collected by Walter Mantell. The type locality was referred to as being a "vast rocky head" near Ruamoa ("Awamoa" in Archey 1941). The locality was said to be three miles south of Oamaru Point. within two years the collection of material had been purchased by the British Museum (Natural History) and Owen (1858a) published a complete description of the limb, in which it was figured. A mounted skeleton was then presumed to have been constructed which included the hind limb that Owen (1858a) had described. Owen (1858b) produced a description of the entire skeleton of *Dinornis elephantopus*. This skeleton was subsequently put on public display (BM(NH) no. A3620, ex. no.** [*sic*] in Lydekker 1891). Owen (1858b, 1879), Lydekker (1891), Lambrecht (1933) and Archey (1941) all referred to this mounted skeleton as being the 'type'.

Archey (1941) recognised the necessity to nominate a lectotype from the syntypical series of *Pachyornis elephantopus* (Owen). He chose the left tarsometatarsus of the mounted skeleton, which he assumed, for good reason, to be the same bone as that figured in Owen's (1858a) descriptions, and subsequently incorporated in the composite skeleton (see Lydekker 1891).

Whilst recurating the collection, the authors discovered that the left leg of the mounted skeleton did not correspond in detail to the elements figured by Owen (1858a). Briefly, the femur is less damaged in the region of the trochanteric ridge, and the tibiotarsus has neither the muscle scars nor the damage figured in the description. The tarsometatarsus differs in the configuration of the proximal foramen, lacks the two small foramina situated on the anterior surface of the shaft, and the articular surface of the third condyle is damaged. The

authors feel that these differences are too great to be regarded as artistic licence, and hence conclude that the left hindlimb of the mounted skeleton is not that figured by Owen (1858a).

A search was made of the collection to determine whether the missing hindlimb was present: it was not found. Various scenarios could be proposed to explain its fate. It may not have been incorporated in the mount, but instead was retained by Mantell, to languish unrecognised, in another collection. Much of Mantell's material was given to the collection of the Royal College of Surgeons. Much of the material in this collection was destroyed by bombing during the Second World War. The material that survived was donated to the Natural History Museum.

If, as seems increasingly likely, Archey's (1941) lectotype is lost we are left with a nomenclatorial problem, as another specimen will have to be chosen from the syntypical series. The authors feel reasonably certain that the hindlimb of the mounted skeleton was part of the original collection, and can therefore be regarded as being part of the syntypical series. We have at present refrained from nominating a neotype, in the hope that searches by other curators may uncover the lost lectotype.

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